

# User Guide

## for Dr. Oakley Gordon's

# Homework/Quiz Course Software

This software began as a way of presenting and grading homework assignments over the internet, making homeworks available to any student who can find a connection to the internet, and freeing the instructor from having to grade numerous assignments. It has grown over the years to a package that is larger in scope, more sophisticated in its pedagogy, and easier to run. Note the software makes use of color text that will not be viewable in photocopies of this document. The software itself can be accessed: [www.psych.utah.edu/gordon/JavaDemo/](http://www.psych.utah.edu/gordon/JavaDemo/)

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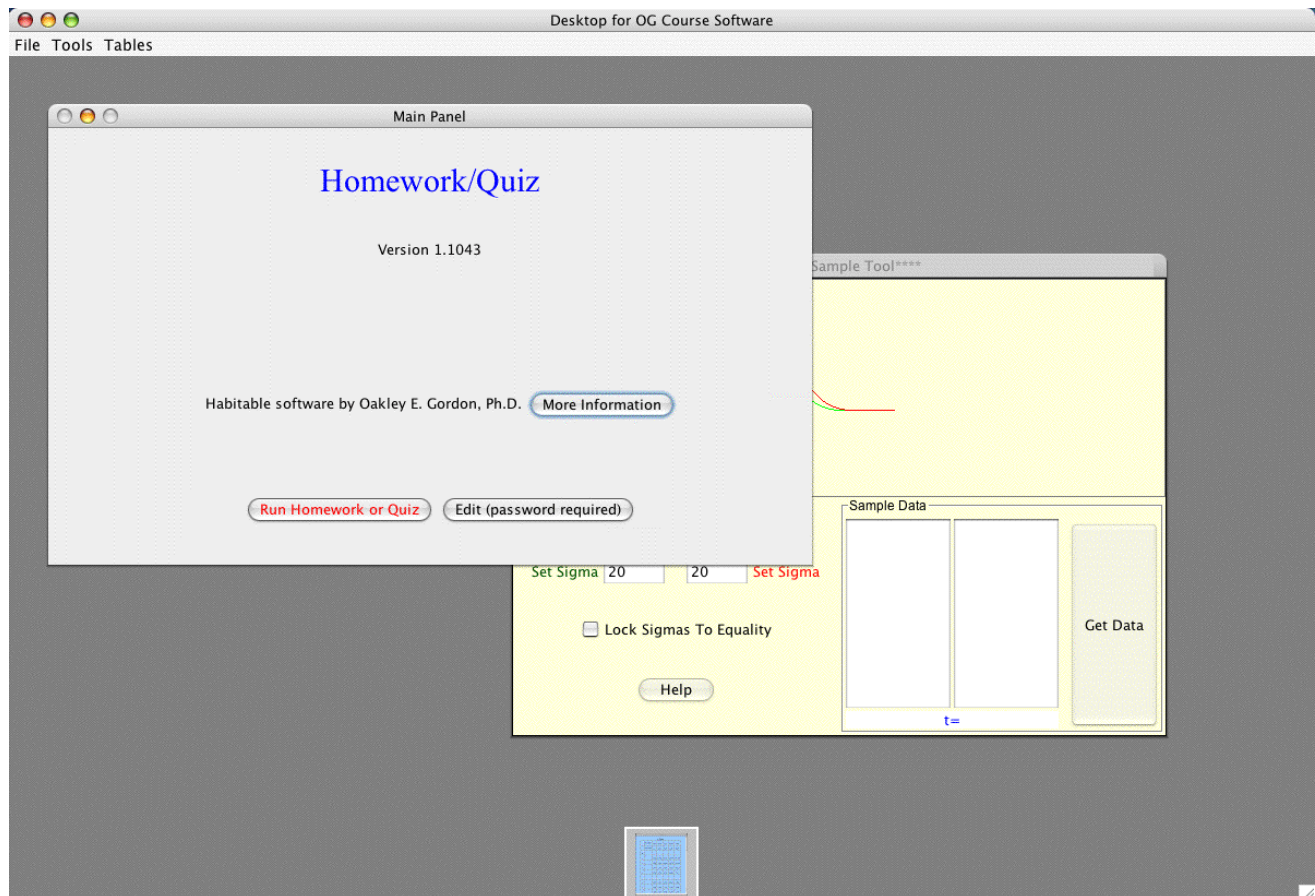
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## The Virtual Desktop

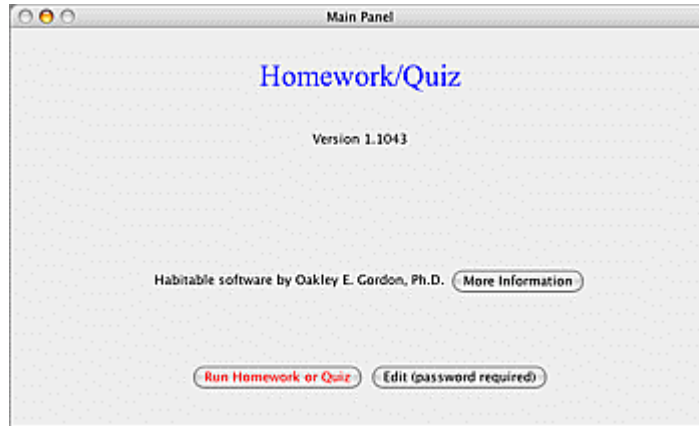


The virtual desktop provides the context within which the various elements of the program are displayed. It acts in a similar fashion to the system's desktop in that it has a menu bar and an area (colored gray above) where windows (technically 'panels') associated with the program can be displayed. The menu bar normally comes with just a 'File' menu with just one item, 'Quit'. For our purposes in the statistics class we have added menus that open up additional panels on the desktop which provide tools and statistical tables that are necessary to answer the questions in the homeworks and quizzes. The panels can be moved about, resized, minimized to icons, and dismissed, making it easy to have several panels in the virtual desktop at once. In the image above, one of the stat tools that is required to answer some of the homework questions has been opened and placed behind the homework/quiz main panel. A statistical table has been opened and minimized at the bottom of the desktop.

When the program is started, the virtual desktop appears and sizes itself to take up approximately 95% of the user's screen. This provides a maximum amount of room for the virtual desktop (useful when more than one panel is open on the desktop) without giving the user the experience that it has somehow taken over their computer (the system desktop is still visible around the edges of the virtual desktop). The user can then resize the virtual desktop to a desired size by dragging its bottom right corner.



## The Opening Panel



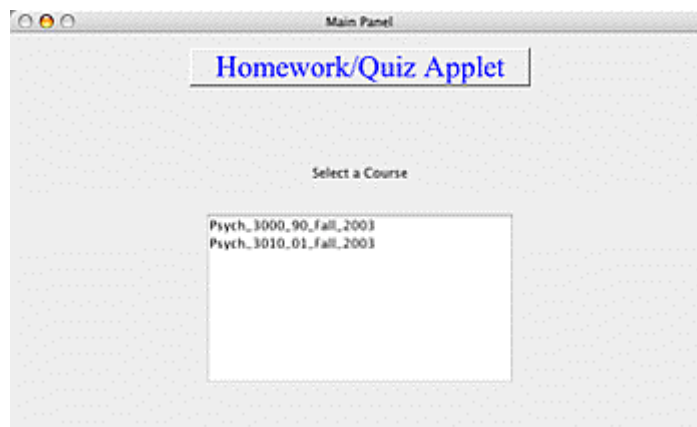
This is the first panel the user sees. If they simply want to run an existing homework or quiz they press the 'Run Homework or Quiz' button. If they are an instructor and want to do some editing (e.g. add a class, edit the list of students, get grades, add new homeworks, edit existing homeworks) then they press the 'Edit (password required)' button, which obviously will require a password for them to gain access to the editing features.

First we will take a look at what the program is like for a student who is simply running the program to do a homework or to do quiz or to look at their grade. Then we will take a look at what the program is like for an instructor who wants to edit the list of courses or edit homeworks. I suggest you don't jump ahead to look at the editing features yet, as they will make more sense after you understand what the experience is like for the student.

## Entering the Program as a User (e.g. student)

There are two different ways to enter the course software. Currently, the students enter the software through the 'Course Selection Panel', followed by the 'Student Selection Panel'. This route is depicted below. In the future, students at the University of Utah will first visit the 'Open Learning Management System', there they input their university ID number, select the class, and then enter into the homework/quiz software. When entering through the second option the course selection panel and student selection panel described below are skipped as the relevant information has already been obtained.

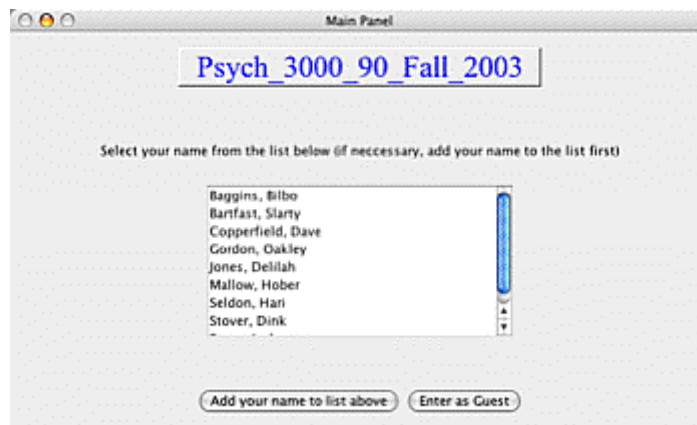
### Course Selection Panel



Here the student clicks on the name of the course from the list provided. If the list of courses exceeds the size of the text field then the list automatically becomes a scrollable list. When the course name is selected the next panel ('Student Selection') is displayed.



## Student Selection Panel



If this is the first time the student has accessed this class this semester then they will need to add their name to the list above. When they click on the 'Add your name to list above' they will be prompted for their first name, last name, a password, and a hint to help them remember their password. They will then be returned to this list where their name now appears.

If the student has previously entered their name and password for the class then they can click on their name, and after giving their password the next panel ('Index of Items') is displayed. The user can also enter the program as a guest, in which case they are warned that they will not be able to record any grades from work they perform on the assignments and quizzes.



## Index of Items Panel

Item Name	Status	Due Date	Score	Type
Introduction to the Software	●	Sat, Jan 10, 2004	50	Hmwk
Basic Probability	●	Mon, Jan 12, 2004	0	Hmwk
Interface Science and Statistics	●	Wed, Jan 14, 2004	0	Hmwk
Normal Distribution	●	Sat, Jan 17, 2004	0	Hmwk
Binomial Distribution	●	Mon, Jan 19, 2004	0	Hmwk
Central Tendency	●	Thu, Jan 22, 2004	0	Hmwk
Variability	●	Sat, Jan 24, 2004	0	Hmwk
Quiz 1	●	Mon, Jan 26, 2004	25	Quiz
Detect Difference	●	Sat, Jan 31, 2004	10	Game
Correlation Concepts	●	Sun, Feb 1, 2004	0	Hmwk
Correlation Calculations	●	Mon, Sep 29, 2003	0	Hmwk
Interactions	●	Wed, Oct 1, 2003	0	Hmwk

This panel lists the course items, along with information about the *item status* (described below), due date, score earned, and *item type* (also described below). Clicking on the name of an item takes the student to that item (with the exception of the offline exams, which trigger a dialog box explaining that the exams are not available online).

### Item Status

The color key to the status of the items can be viewed by clicking on the 'View Key to Status Colors', which brings up the following information (the colors are not viewable in photocopies of this documentation):

●	Not Available Yet
●	Available
●	Available. Warning: Deadline in Less than a Week!
●	Past Deadline: Grace Period (Can do for Partial Credit)
●	Past Deadline and Grace Period: No Credit
○	Not Applicable (e.g. offline exam)

### Item Types

The software currently supports four types of items: homeworks, quizzes, and games (presented and graded online by the software), and exams (presented and graded offline but whose scores can be viewed online).

Homeworks consist of a series of questions of various types (multiple-choice, fill-in-the-blank, and other formats). Three levels of feedback are given after the student has committed their answer. The various features of the questions will be covered later in this document. At the end of a homework the student is shown their score which they may choose to hand in or not.

Quizzes are exactly like homeworks except the students receive no information on what was the correct answer.

Games are interactive ways to teach students the concepts of the courses. They are specific to the course and need to be written in the JAVA programming language. In other words, you are on your own if you want to have games in your course unless you want to use the games we have written for teaching statistics.

Exams are taken offline, but the instructor can input the scores into the program so that the students can view their scores and so that scores on the exams can be part of the software's computation of each student's total grade in the course.

**Viewing Grades:**

If the student wishes to view his or her grades in the course they can click on the 'View All of Your Grades' button, which brings up the following information:

Grade Book

Grades for: Gordon, Oakley

Grading Criteria		Item Weights	Grade So Far	Final Grade
Grade	Threshold	Item	% of Grade	
A	92	Homeworks:	15	
A-	90	Quizzes:	40	
B+	88	Games:	5	
B	82	Exams:	40	
B-	80			
C+	78			
C	72			
C-	70			
D+	68			
D	62			
D-	60			
F	0			

Grade on Homeworks: 2.6315789473684212%

Grade on Quizzes: 5.0%

Grade on Games: 10.0%

Grade on Exams: 30.0%

Total Grade So Far: 14.9%

8.4

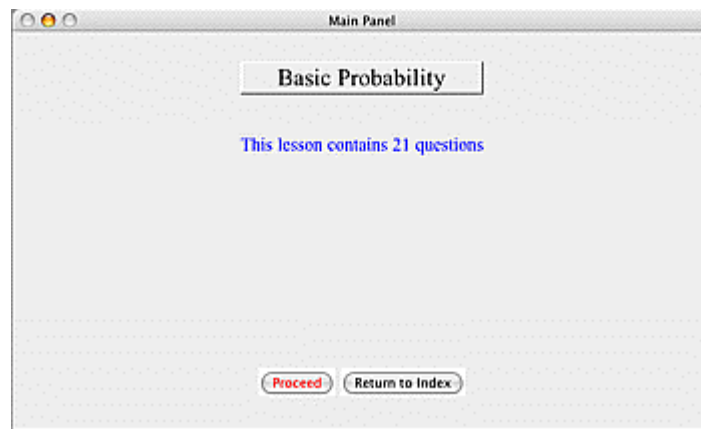
OK

Note the small bug, the percentile grade on the homeworks is not rounded off.

Referring back to the Index of Items panel, clicking on the name of a homework or quiz takes the student to the 'Intro Panel' for that item.



## Homework or Quiz Intro Panel



Note that the intro panel gives the name of the lesson (i.e. a homework or quiz) and the number of questions.

**Question Types.** The program currently supports the following types of questions (examples of each are given in the following pages):

1. Fill-in-the-blank (textual answer expected).
2. Fill-in-the-blank (numeric answer expected).
3. Multiple-choice (select the single best answer).
4. Multiple-select (select all the answers that apply).
5. Multiple-choice-graphic (select the correct image)

**Randomization of Question Order.** The instructor can have subsets of the questions in a lesson be presented in random order (thus the questions are not in the same order each time the student views the homework), and can also have subsets of questions be randomly selected from a larger pool of questions (thus the questions themselves may differ each time the student views the homework). As will be seen, the instructor can also have the possible answers in multiple-choice and multiple-select questions be presented in random order (thus the answer for any particular question is not always the same).

Once the student clicks on the 'Proceed' button, they begin to view the individual questions.





## Elements Common To All Question Types

### A Question Panel Before the Student Inputs an Answer

The screenshot shows a software window titled "Main Panel". At the top left, there are three small colored circles (red, yellow, green). Below the title bar, the text "Basic Probability" is on the left and "Question 2 of 21" is on the right. The main content area is divided into several sections. The "Question" section has a large text field with the placeholder text "This is where the question is stated....". To the right of this field are two buttons: "View Story Problem" and "View Image". Below the "Question" section is the "Input Your Answer" section, which contains a smaller text field and the instruction "Fill in the blank with the appropriate term(s), then press 'Evaluate'. Spelling matters, capitalization does not." Below this is the "Correct Answer" section, which is a large empty text field. At the bottom of the window are two buttons: "Evaluate" and "Return to Index".

**'Question' Area:** The text of the question itself can be of any length. If the text is too long to display within the text field then the field automatically becomes a scroll field. If the question is very long, then attempting to read it within a small scroll field can be a bother. To alleviate this, if the student clicks on the question text field a new window opens up with a much larger text field that is easier to read.

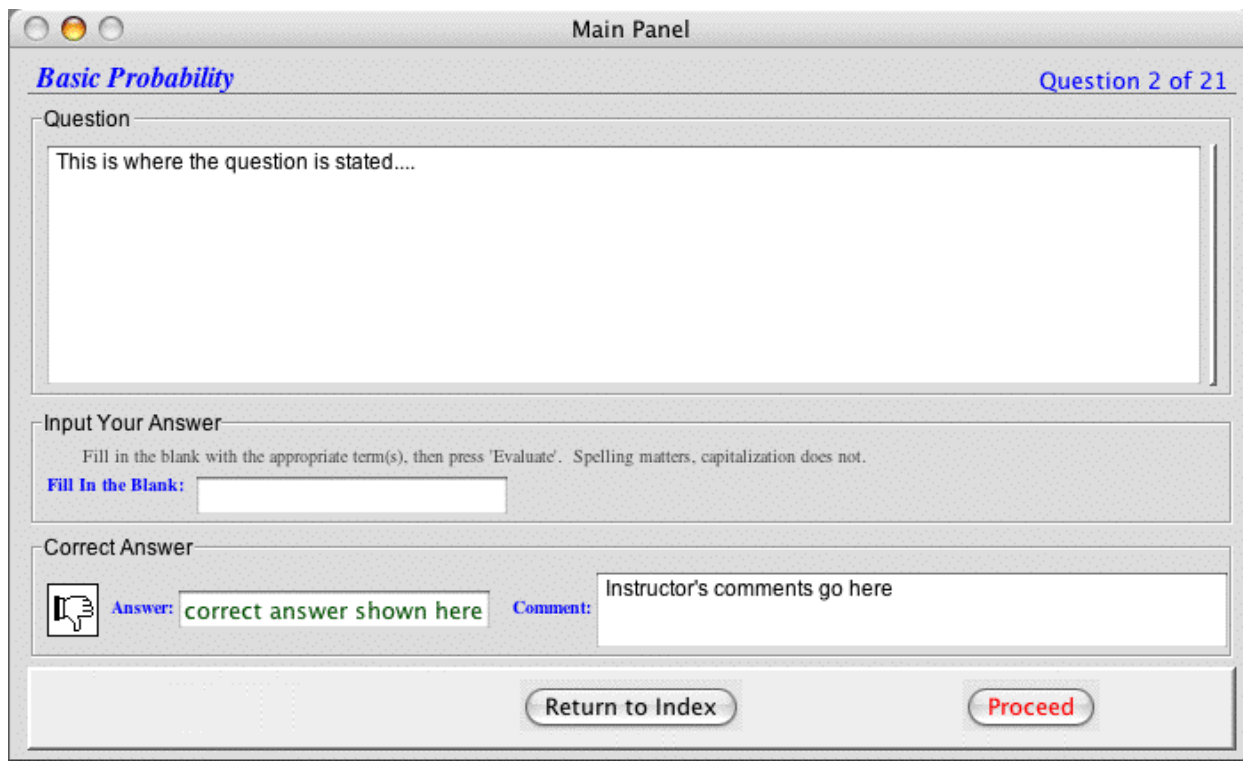
**'View Story Problem' Button:** Story problems can be linked to any number of questions. This saves having to repeat the same story problem with each question. If there is no story problem associated with the question then this button is invisible. An example of a story problem panel is given later in this document.

**'View Image' Button:** If the instructor would like to put an image up on the screen to ask questions about it, then the image can be linked to this button. When the button is clicked the image appears in a separate window sized to fit the image. If there is no image associated with the question then this button is invisible.

**'Input Your Answer' Area:** This is the area of a question panel that varies across question types (i.e. a fill-in-the-blank question has a blank area here for inputting the answer, a multiple choice question has a list of choices from which to choose).

**'Evaluate' Button.** Once a student has inputted an answer and is willing to commit to it, he or she clicks on this button to bring up the feedback.

### A Question Panel After the Student Inputs an Answer



The screenshot shows a window titled 'Main Panel' with a title bar containing three colored buttons (red, yellow, green). The window is divided into several sections:

- Basic Probability** (blue text, top left)
- Question 2 of 21** (blue text, top right)
- Question** (section header, left of a large text area containing the text 'This is where the question is stated....')
- Input Your Answer** (section header, left of a text input field):
  - Text below the header: 'Fill in the blank with the appropriate term(s), then press 'Evaluate'. Spelling matters, capitalization does not.'
  - Text below the header: 'Fill In the Blank: ' followed by a text input field.
- Correct Answer** (section header, left of the feedback area):
  - Feedback area contains:
    - A thumbs up/down icon.
    - Text: 'Answer: correct answer shown here' (the text 'correct answer shown here' is green).
    - Text: 'Comment: Instructor's comments go here' followed by a text input field.
- At the bottom, there are two buttons: 'Return to Index' and 'Proceed' (in red text).

At this point the student can no longer change his or her answer.

**Correct Answer Feedback:** After committing to an answer the panel now displays three types of feedback: 1) A 'thumbs up' or 'thumbs down' image indicates whether the student's answer was correct or not; 2) The correct answer is given; and 3) A comment area appears where the instructor can give instructive comments (e.g. why the correct answer is what it is, why other answers would be wrong, and/or what can be learned from this question). If the length of the comment exceeds the size of the comment text field it automatically becomes a scroll field. If the student clicks on the comment text field a new window opens up with a much larger text field that is easier to read if the comment is long.

**'Proceed' Button:** Clicking on this button takes the student to the next question of the homework or quiz. If it is the last question then the button label is replaced by 'Grade' and the student sees the 'End of Homework' panel.



## Fill-in-the-Blank Questions (Textual Answer)

The screenshot shows a window titled 'Main Panel' with a standard macOS-style title bar (red, yellow, and green buttons). The window is divided into several sections. At the top left, the text 'Basic Probability' is displayed in blue. At the top right, 'Question 2 of 21' is shown in blue. Below the title bar, there is a section labeled 'Question' containing a large text area with the placeholder text 'This is where the question is stated....'. Below this is a section labeled 'Input Your Answer' which includes a small instruction: 'Fill in the blank with the appropriate term(s), then press 'Evaluate'. Spelling matters, capitalization does not.' Below the instruction is a label 'Fill In the Blank:' followed by a single-line text input field. Below the input field is a section labeled 'Correct Answer' which is currently empty. At the bottom of the window, there are two buttons: 'Evaluate' (with a red border) and 'Return to Index' (with a grey border).

Before comparing the student's answer with the correct answer the program strips all blank characters (e.g. the spaces between words) from both and ignores any differences in capitalization. For example, if the correct answer is 'Salt Lake City', the program would identify as correct the following answers: "SaltLake City", "salT LaKeCity". etc.

## Fill-in-the-Blank Questions (Numeric Answer)

The screenshot shows a window titled 'Main Panel' with a standard Mac OS X title bar. Inside the window, the top left corner has a link 'Introduction to the Software' and the top right corner shows 'Question 4 of 7'. The main content area is divided into three sections: 'Question', 'Input Your Answer', and 'Correct Answer'. The 'Question' section contains a text box with the following text: 'This is an example of a question that expects a numeric answer. This can be tough to grade by computer as you might round your answer differently than the professor. A look at the 'Must be correct within...' field shows you how much of a rounding factor the computer will take into consideration. The example question is "What is the value of 1/3 expressed as a decimal?" (hint: answer is .333)'. The 'Input Your Answer' section has a text prompt 'Fill in the blank with the appropriate number. Only use '0123456789.+-', no commas please.' followed by a label 'Fill In the Blank:' and an empty text input field. To the right of the input field is a label 'Must be correct within ±' followed by a text input field containing '0.03'. The 'Correct Answer' section is currently empty. At the bottom of the window, there are two buttons: 'Evaluate' and 'Return to Index'.

**Question**

This is an example of a question that expects a numeric answer. This can be tough to grade by computer as you might round your answer differently than the professor. A look at the 'Must be correct within...' field shows you how much of a rounding factor the computer will take into consideration. The example question is "What is the value of 1/3 expressed as a decimal?" (hint: answer is .333)

**Input Your Answer**

Fill in the blank with the appropriate number. Only use '0123456789.+-', no commas please.

Fill In the Blank:

Must be correct within ±

**Correct Answer**

The challenge in evaluating a numeric answer is that the student may round the answer differently than the correct answer entered by the instructor. When writing this type of question the instructor enters a 'must be correct within ...' factor that the program uses when evaluating the student's answer. This information is available to the student when they are answering the question, so that they understand how much they can round their answer.

## Multiple-Choice Questions

The screenshot shows a window titled "Main Panel" with a standard macOS-style title bar (red, yellow, and green buttons). The window is divided into several sections. At the top left, there is a link "Introduction to the Software". At the top right, it says "Question 2 of 7". Below this is a section labeled "Question" containing a text box with the following text: "This is an example of a multiple-choice question where you are to select the single best answer. If you want to change your mind before evaluating your answer simply click on another choice. Any number of options can be included in a question like this, if there is not enough room to show all of the options then they will appear in a scroll window. The instructor can also tell the program to present the options in random order, so that each time you view the question the position of the correct answer might be different. The question is, 'What is the last name of the professor of this course?' Select the correct answer, click the evaluate button, get your feedback, then click the proceed button." Below the question text is a section labeled "Select the Single Best Answer" containing three radio button options: "a) Oakley", "b) Ph.D.", and "c) Gordon". Below the options is a section labeled "Correct Answer" which is currently empty. At the bottom of the window are two buttons: "Evaluate" (with a red border) and "Return to Index" (with a grey border).

This is a type of question where only one answer may be selected. If the student changes his or her mind and clicks a different answer then the one they selected originally is deselected. The instructor may list as many possible answers to select from as he or she would like, and each answer can be more than one line of text. If additional room is needed on the panel to display the answers then the answer area becomes a scroll field. The instructor can also select an option where each time the student views the questions the answers are displayed in random order (e.g., the correct answer may be 'a' on one viewing but 'c' on another viewing).

## Multiple-Select Questions

The screenshot shows a window titled 'Main Panel' with a standard Mac OS X title bar (red, yellow, and green buttons). The window is divided into several sections. At the top left, there is a link 'Introduction to the Software'. At the top right, it says 'Question 3 of 7'. Below this is a 'Question' section containing a text box with the following text: 'This is an example of a multiple-choice question where you need to indicate all of the correct answers (one or more). To get this graded as being correct you have to be correct in all instances (selecting all of the correct answers and not selecting all of the wrong answers). Again, any number of options might be presented, and the instructor may choose to have them presented in random order. The sample question is "Which of the following are famous psychologists?" (big hint: Skinner and Rogers)'. Below the question text is a section labeled 'Select ALL that apply' which contains a list of four options, each with an unchecked checkbox: 'a) Carl Rogers', 'b) Slarty Bartfast', 'c) Oakley Gordon', and 'd) B. F. Skinner'. Below the options is a 'Correct Answer' section, which is currently empty. At the bottom of the window are two buttons: 'Evaluate' (with a red border) and 'Return to Index' (with a grey border).

These questions are similar to 'multiple-choice' questions but in this case the student must select all of the correct answers rather than just one correct answer. To be evaluated as 'correct' the student must have selected all of the correct answers and none of the incorrect answers (i.e. no partial credit for getting some correct). Again, any number of answers can be provided, they can be of any length, and the instructor can indicate that the answers should be displayed in random order.

## Multiple-Choice-Graphic Questions

Main Panel

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[Introduction to the Software](#) [Question 6 of 7](#)

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Question

Multiple choice questions can also involve a selection among several images. An example is given below, the images can be randomly ordered, and if there are too many to view at once you can scroll through them. For this particular question select the one that has two 'reject  $H_0$ ' regions.

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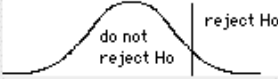
Select the Single Best Answer

**SD of  $M_1 - M_2$  if  $H_0$  True**




a

**SD of  $M_1 - M_2$  if  $H_0$  True**



b

**SD of  $M_1 - M_2$  if  $H_0$  True**



c

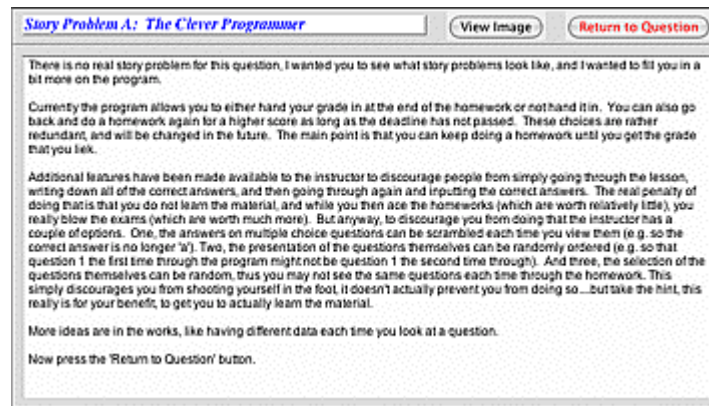
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Correct Answer

EvaluateReturn to Index

With this type of question the student indicates which picture is the correct answer. Any number of pictures can be used and they can be of any size (the picture viewing area will provided horizontal and vertical scroll bars if necessary) but the question looks better if the images are not so tall that they require vertical scrolling. The instructor can have the images be shown in random order each time the panel is displayed.

## Story Problems

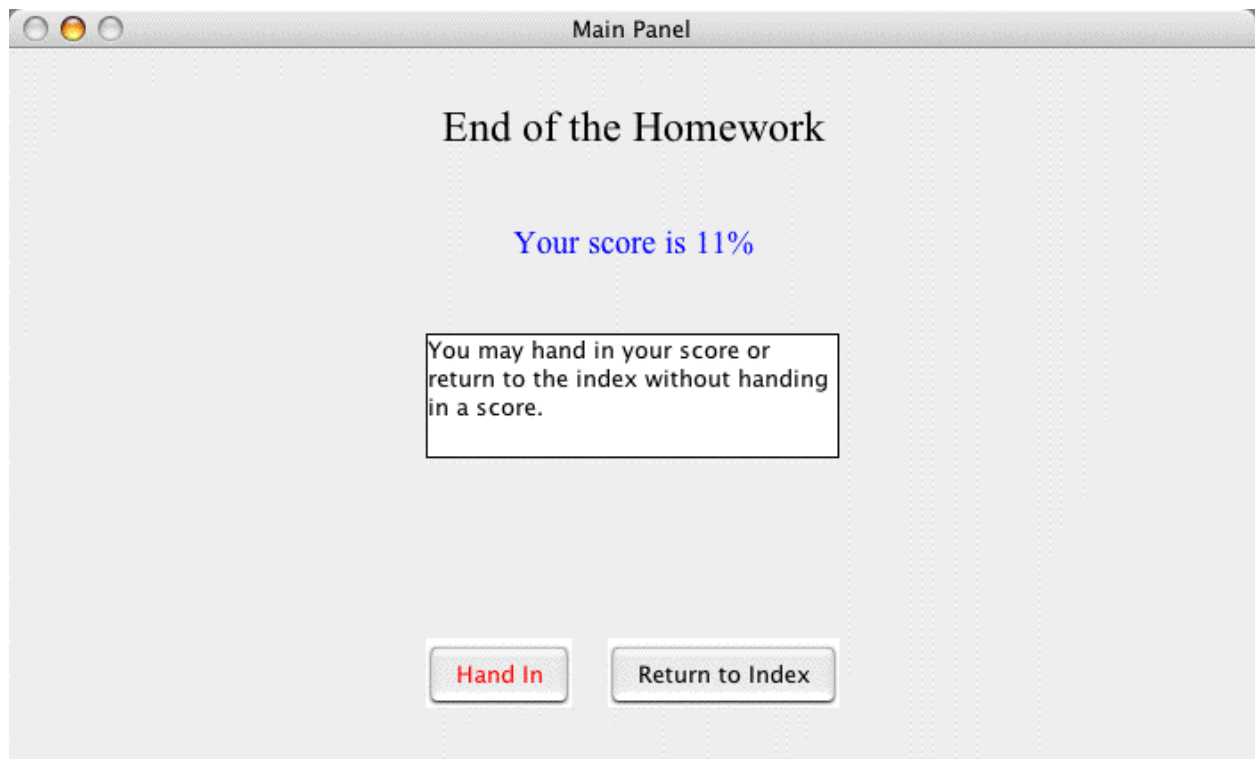


A story problem can be linked to any number of questions. When creating the story problem the instructor is shown a list of existing story problems in the lesson and asked to input a unique name for the new story problem. When creating a question, the instructor can ask for a list of all existing story problems and then click on the one that is to be linked to the question.





## End of Lesson Panel

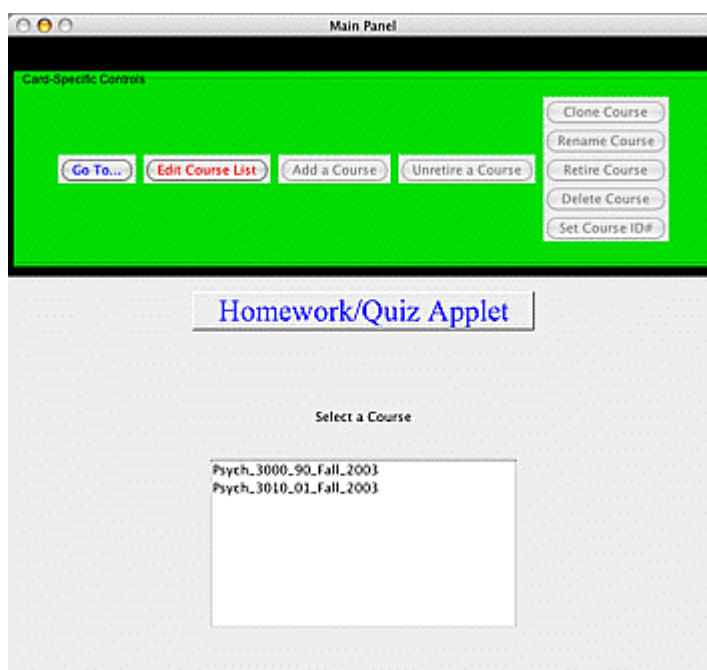


If the student clicks on the 'Hand In' button then their grade on the homework will be compared to any existing grade they may have on that homework. If the new grade is greater or if they do not have a previous grade on the homework, then the new grade will be recorded. The grade displayed reflects any penalty that may be involved for handing the homework in late. Currently the program automatically deducts 50% from the grade if the homework is past the deadline but less than one week late, and gives no credit for homeworks that are more than a week late. Later versions of the program will allow the instructor to set those values for the class (rather than using the default values). The current version does allow the instructor to grant individual exceptions to the deadlines to allow a student to hand an assignment in late with whatever penalty the instructor chooses.

## Entering the Program to Edit Its Contents

Entering the editing mode of the program is accomplished by clicking the 'Edit (password required)' button on the opening panel, and then entering the correct password to edit the site. The general approach of the editing environment is to display the user panel (that the student sees when running the software) within a larger frame that has controls to let you edit that panel. If the user panel has a list of classes to select from, then the larger editing frame has controls to let you add, delete, rename classes, etc. If the user panel has a list of students in the class, then the larger editing frame has controls to delete students, view or change their grades, grant them deadline exceptions, etc.

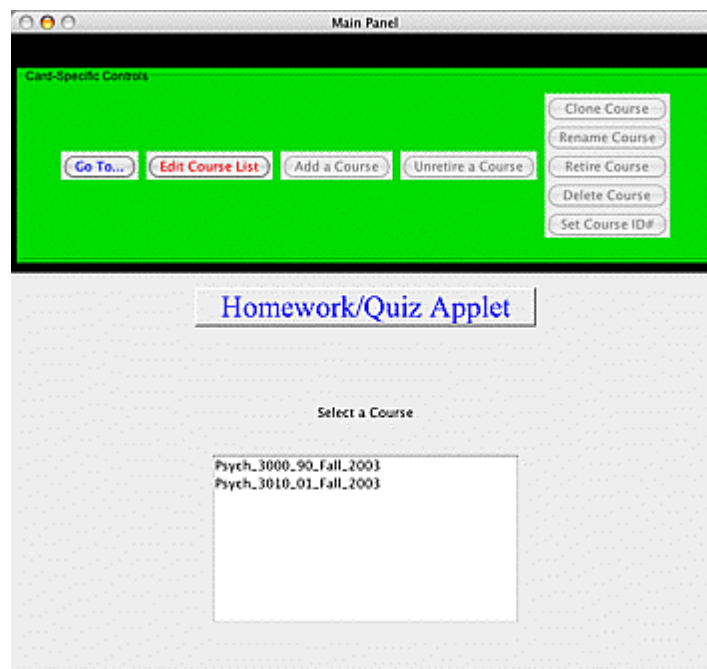
### Elements Common Among Control Panels



**'Go To...' Button:** This allows you to move around within the program in a non-linear way. Some panels can not be accessed before others, for example you cannot view the panel that shows a list of students in the class until you first visit the panel where you indicate which class it is.

**'Edit...List' Button:** Most panels in editing mode have a button labeled 'Edit....List'. You need to click on that button to activate other editing controls, and to turn off the normal action of the user panel.

## Edit List of Courses Panel



**Edit Course List:** this must be clicked first to activate the other buttons and to turn off the normal action of automatically being sent to the next panel when the name of a course is selected in user mode. **Stop Editing:** this button appears when the 'Edit Course List' button is clicked, and is necessary to turn on the normal action of selecting a course when in user mode (i.e. being taken to next panel).

**Add a course:** this sets up the appropriate directories and files for a new course. You will be asked for a password that will be needed to edit the course in the future (i.e. change its name, retire it, delete it, etc.).

**Clone a course:** this creates a copy of a course with everything except student names and grades. This is useful for starting off a new semester using the lessons from a previous semester.

**Rename a course:** what you would think.

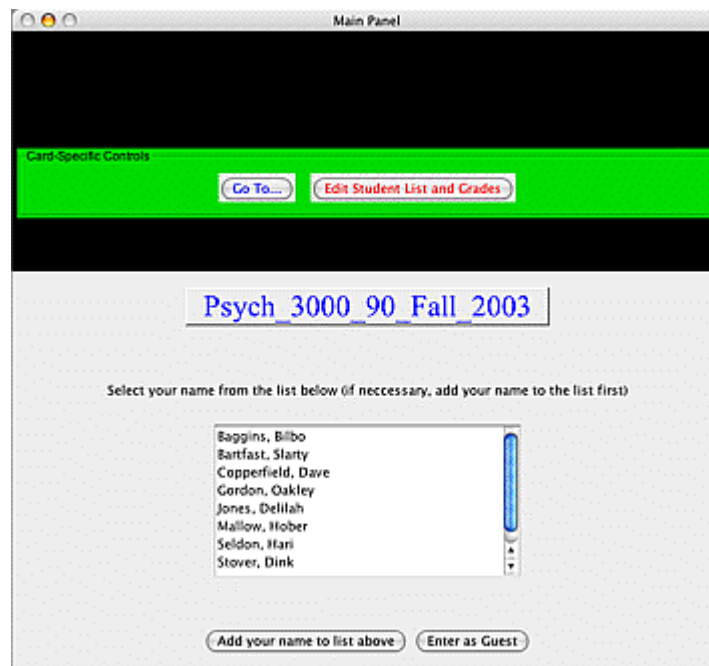
**Retire a course:** this moves the course into a special directory, and it no longer shows up on the 'Select a Course' list.

**Unretire a course:** moves the course out of retirement and back into the 'Select a Course' list.

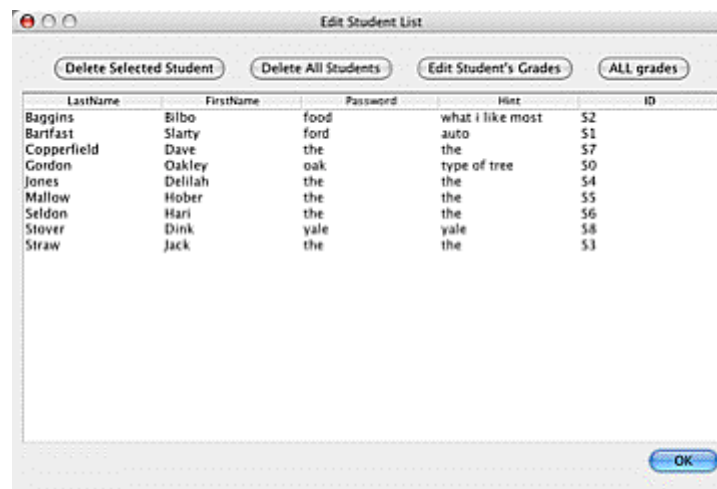
**Delete a course:** completely deletes all files, and directories associated with a course.

**Set course ID#:** necessary for entering the program within the University of Utah's (Jake Jensen's) learning management system, it is not necessary outside that context.

## Edit Student List and Grades Panel



**Edit Student List and Grades:** click this button to delete students, view information about each student such as their name and password, to change an individual student's grades, give the student a deadline extension on a specific homework or quiz, or view all grades on all assignments for all students. Clicking the button brings up:



**Delete Selected Student:** you have to select a student from the list first.

**Delete All Students:** convenient at the end of the semester.

**ALL grades:** lists grades for all of the students, listed by student or by assignment. You may view all of their grades on all assignments, or just all of the final grades.

**Edit Student's Grades:** allows you to edit a student's grades or grant the student a deadline extension (select a student before clicking on this button). Clicking on this button brings up the following screen:

Lesson Name	Assigned	Due Date	Extn	Type	Score
Introduction to the Software	<input checked="" type="checkbox"/>	Sat, Jan 10, 2004	<input type="checkbox"/>	Hm...	50
Basic Probability	<input checked="" type="checkbox"/>	Mon, Jan 12, 2...	<input type="checkbox"/>	Hm...	0
Interface Science and Statistics	<input checked="" type="checkbox"/>	Wed, Jan 14, 20...	<input type="checkbox"/>	Hm...	0
Normal Distribution	<input checked="" type="checkbox"/>	Sat, Jan 17, 2004	<input type="checkbox"/>	Hm...	0
Binomial Distribution	<input checked="" type="checkbox"/>	Mon, Jan 19, 2...	<input type="checkbox"/>	Hm...	0
Central Tendency	<input checked="" type="checkbox"/>	Thu, Jan 22, 20...	<input type="checkbox"/>	Hm...	0
Variability	<input checked="" type="checkbox"/>	Sat, Jan 24, 2004	<input type="checkbox"/>	Hm...	0
Quiz 1	<input checked="" type="checkbox"/>	Mon, Jan 26, 2...	<input type="checkbox"/>	Quiz	25
Detect Difference	<input checked="" type="checkbox"/>	Sat, Jan 31, 2004	<input type="checkbox"/>	Game	10
Correlation Concepts	<input checked="" type="checkbox"/>	Sun, Feb 1, 2004	<input type="checkbox"/>	Hm...	0
Correlation Calculations	<input checked="" type="checkbox"/>	Mon, Sep 29, 2...	<input type="checkbox"/>	Hm...	0
Interactions	<input checked="" type="checkbox"/>	Wed, Oct 1, 2003	<input type="checkbox"/>	Hm...	0
Quiz 2	<input checked="" type="checkbox"/>	Mon, Oct 6, 2003	<input type="checkbox"/>	Quiz	0
Regression	<input checked="" type="checkbox"/>	Mon, Oct 6, 2003	<input type="checkbox"/>	Hm...	0
Regression Variance	<input checked="" type="checkbox"/>	Wed, Oct 8, 2003	<input type="checkbox"/>	Hm...	0
Binomial Sampling Distribution	<input checked="" type="checkbox"/>	Mon, Oct 13, 2...	<input type="checkbox"/>	Hm...	0
Sampling Distribution of the Mean	<input checked="" type="checkbox"/>	Wed, Oct 15, 2...	<input type="checkbox"/>	Hm...	0
Estimating Parameters	<input checked="" type="checkbox"/>	Mon, Oct 20, 2...	<input type="checkbox"/>	Hm...	0
Quiz 3	<input checked="" type="checkbox"/>	Wed, Oct 22, 2...	<input type="checkbox"/>	Quiz	0
Midterm Exam	<input checked="" type="checkbox"/>	Thu, Oct 23, 2...	<input type="checkbox"/>	Exam	30

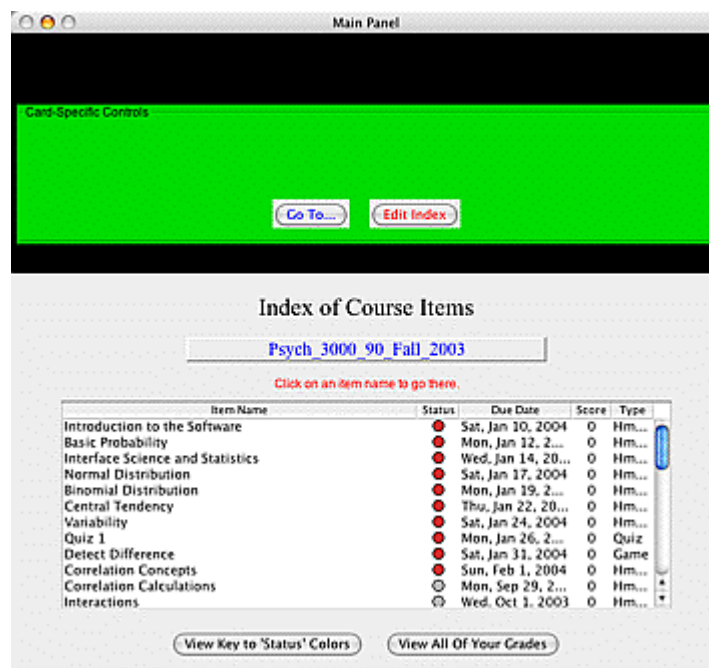
Every assignment (homework, game, quiz, exam) is listed along with: an indication of whether it has been assigned yet or not (you actually set that on a different panel); the due date of that assignment (**click on the date to grant an individual extension to the deadline**); an indication of whether the due date that is displayed is an extended deadline or not; and finally the student's score on the assignment (**click on the grade to change it**).

**View Grade Book:** this button brings up the same grade book the student can view, indicating the student's grades in the various categories, their grade to date, and what their final grade for the class is at this point. From any grade book you can edit the weights that various elements in the course have in determining the final grade.

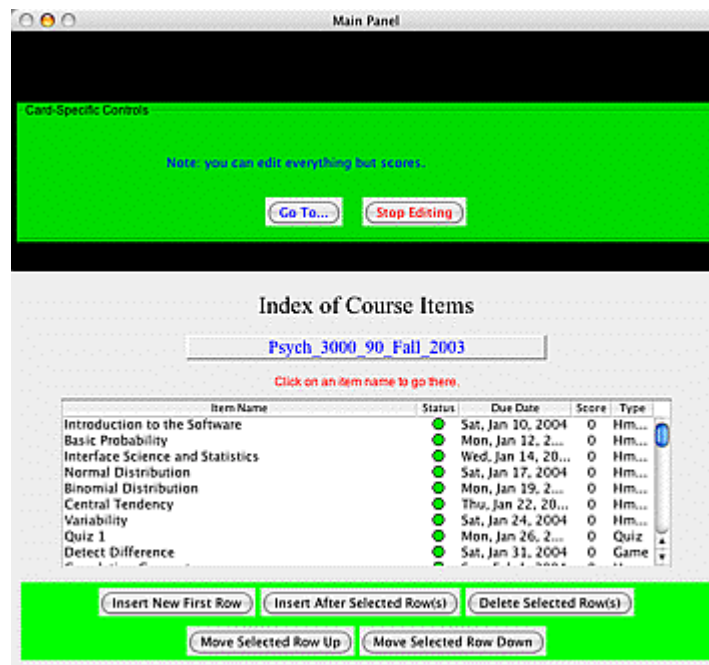
**Exiting the Edit Student List and Grades:** close the various dialog boxes you've opened along the way until you get back to the original list of students, then click the 'Stop Editing' button and then proceed normally (either select a student name or enter as a guest).



## Editing the List of Lessons Panel



**Edit Index:** clicking on this button changes the panel to that shown below.



You can now **assign or unassign** a lesson by clicking on its status circle, you can **change the due date** of a lesson by clicking on the date, and you can **change the 'type'** of the lesson (e.g. from a homework to a quiz). You can also **add, delete, and move lessons** around on the list.

**To move on to a lesson to edit it** (edit an existing lesson or to begin adding content to a new lesson you just added to the list), press the **Stop Editing** button, then click on the name of the lesson. ▼

## Editing a Lesson



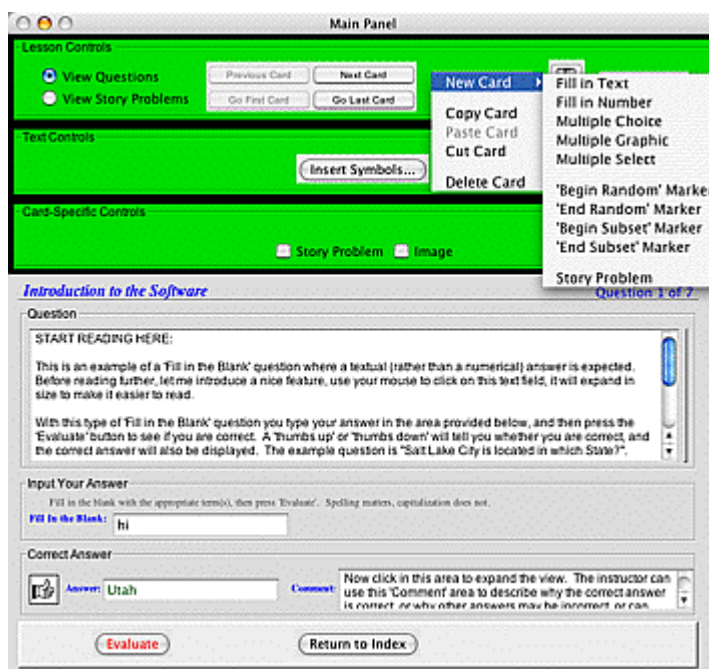
### Lesson Controls:

View Questions or View Story Problems: Questions and story problems have different editing controls, so you can either move back and forth among the questions and edit those, or move back and forth among the story problems and edit those. These buttons let you set with which you want to work.

Previous Card, Next Card, Go First Card, Go Last Card allow you to move around among questions or story problems in the lesson. Questions, story problems, and various panels such as 'Begin Randomization' are referred to as 'cards'. Think of a lesson as a set of cards that are displayed one at a time as the student goes through the lesson.

Edit Menu. This allows you to do such things as add, delete, copy, cut, paste cards. The options are shown and described on the following page...

## The Popup 'Edit Menu' in the Lesson Control Panel



Clicking on the **Edit Menu** in the Lesson Controls Panel brings up a menu with the items: New Card, Copy Card, Paste Card, Cut Card, and Delete Card. Cards can be copied and pasted within a lesson only, they cannot be copied and taken to another lesson and pasted there. There is a way to move cards from one lesson to another, it takes advantage of the lessons and questions being stored as text strings, and that method is available through the **Utilities** button (hidden in the image above by the popup menu).

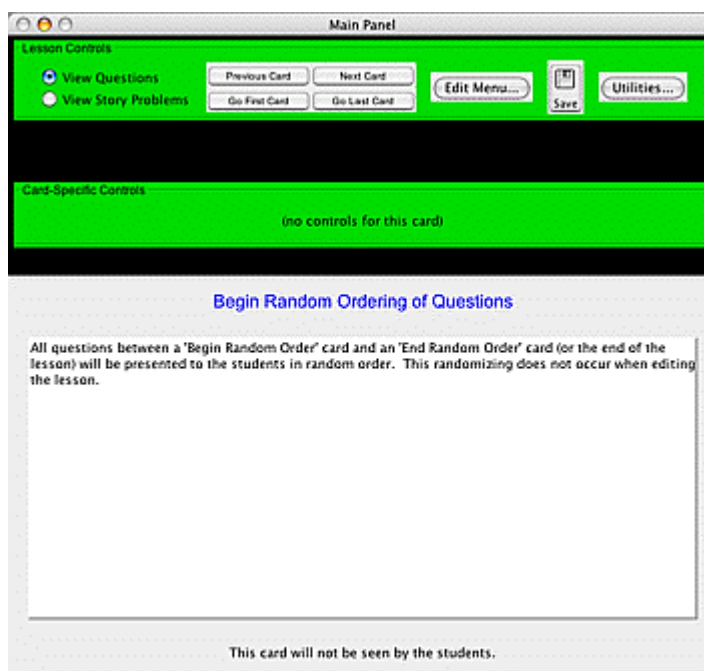
The image above also shows the submenu that appears when **New Card** is selected. This submenu is how you create a new question (Fill in the Text, Fill in the Number, Multiple Choice, Multiple Graphic, or Multiple Select) or a new Story Problem. It is also how you introduce 'Marker Cards' to the lesson.

**Marker Cards:** these cards allow the instructor to influence in what order the questions are displayed. These cards are not displayed when the student is viewing the lesson (but their presence affects the display of the questions).

'Begin Random' Marker Card: all cards in the lesson between a 'Begin Random' marker card and a subsequent 'End Random' marker card (or until the end of the lesson) will be displayed in random order when the student views the lesson (i.e. when the program is in 'user mode'). This feature discourages students from simply writing down all the correct answers the first time through the lesson and then inputting them (or giving them to someone else in the class) on subsequent passes through the lesson. The questions are not displayed in random order when the instructor is editing the program (i.e. when in 'edit mode').



### Example of a Begin Random Marker Card



'End Random' Marker Card: all cards between a 'Begin Random' marker card and an 'End Random' marker card are displayed in random order when the student views the lesson (i.e. when in 'user mode').

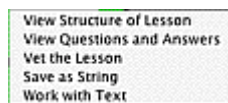
'Begin Subset' Marker Card: When the software encounters this card it looks forward through the lesson until it finds an 'End Subset' marker card, it keeps track of the number of questions between those two cards (let us say that there are 10 questions between the 'Begin Subset' and 'End Subset' cards). When this card is created the instructor inputs a number that represents the size of the subset of questions to be sampled from that set of 10 questions. To continue the example, let's say the instructor indicates that 7 questions should be sampled. The program will then randomly select 7 questions from the set of 10, and show them in random order each time the lesson is viewed while in 'user mode'. Thus there may be different questions (and in different order) each time the student returns to view the homework. This feature further discourages the strategy of just writing down the correct answers to each question and then doing the homework again.

'End Subset' Marker Card: see description of 'Begin Subset' marker card.

**Important notes:** 1) Because marker cards are displayed when editing but not when the student is doing a lesson, there may be a different number of cards in the field that displays the number of questions in the lesson (i.e. in the field that says something like 'Question 1 of 14') in those two contexts ('edit mode' or 'user mode'). 2) Marker cards do not have a 'Return to Index' button, so when editing you cannot leave a lesson from a marker card, you have to go to a question or story problem card to leave a lesson.

## The 'Utilities' Button in the Lesson Control Panel

Pressing the Utilities Button brings up the following popup menu:



View Structure of Lessons: This displays a text field with the card number and question text of each question in the lesson. The display is formatted in such a way that it is easy to see how the marker cards are placed within the series of questions, allowing the instructors to double check their use of the marker cards.

View Questions and Answers: This displays a text field with all of the questions and their answers, which provides a convenient way to view the content of the lesson.

Vet the Lesson: This activates a procedure that checks the lesson for common mistakes, such as forgetting to provide the answer to a question, or having two 'begin random' marker cards without an 'end random' marker card in between.

Save as String: This allows the instructor to save the lesson in the form of serialized Java String file, which is necessary if you want to move a lesson from one course to another. See 'Working with Text' below.

Work with Text: All of information needed for the software to display a question is stored as text. Selecting this option displays a text field with three buttons: 1) '**View Text**' displays all of the information needed to display all of the questions in the current lesson, the instructors can then cut and paste and edit questions in their textual format if they desire. This is particularly useful if you choose to bring in questions from another lesson. 2) '**Import String File**' allows the instructor to select a lesson that has been previously saved as a String, the text of that lesson can then be appended to or can replace the current lesson. 3) '**Implement Text**' takes the information in the display and uses it to recreate the current lesson.

## The 'Insert Symbol' Button in the Text Controls Panel

**Text Control Panel:** This panel was originally going to have many more functions for controlling the display of text within a text field. I implemented options that would allow sections of text in a question or answer field to be formatted in terms of size, style, font, and color. I found, however, that the size of the files for lessons containing that type of formatting was something like ten times greater than that of files that simply contained text, which would have led to unacceptably long downloads of lessons. Consequently, I dropped all options but the ability to insert within text the special symbols that are necessary for expressing questions having to do with statistics.

Insert Symbol: Pressing this button brings up the popup menu displayed below, clicking on the symbol inserts it into the text field that currently has focus, at the spot where the cursor is located.



## Card-Specific Controls

Most types of cards have controls that are specific to them (some cards don't need such a control panel). An example of the card-specific controls for a fill-in-the-blank card is given below. It contains two controls that are found on all question types ('Story Problem' and 'Image').

The screenshot shows a software window titled 'Main Panel'. It has a green header bar with 'Lesson Controls' containing buttons for 'View Questions', 'View Story Problems', 'Previous Card', 'Next Card', 'Go First Card', 'Go Last Card', 'Edit Menu...', 'Save', and 'Utilities...'. Below this is a 'Text Controls' section with an 'Insert Symbols...' button. The 'Card-Specific Controls' section has checkboxes for 'Story Problem' and 'Image', a 'Number of Selections' field set to '3', and a checked 'Randomize' checkbox. The main area displays a question titled 'Introduction to the Software' (Question 2 of 7). The question text is: 'This is an example of a multiple-choice question where you are to select the single best answer. If you want to change your mind before evaluating your answer simply click on another choice. Any number of options can be included in a question like this. If there is not enough room to show all of the options then they will appear in a scroll window. The instructor can also tell the program to present the options in random order, so that each time you view the question the position of the correct answer might be different. The question is, "What is the last name of the professor of this course?" Select the correct answer, click the evaluate button, get your feedback, then click the proceed button.' Below the question is a 'Select the Single Best Answer' section with three radio button options: 'a) Gordon', 'b) Oakley', and 'c) Ph.D.'. At the bottom, there is a 'Correct Answer' section with a text input field containing 'a', a 'Comment' field with the text 'Do you have any idea how many people get this wrong?', and two buttons: 'Evaluate' and 'Return to Index'.

Story Problem: clicking on this button brings up a list of the story problems currently available within the lesson. To tie a question to a story problem select one from the list that appears (note you have to have already created the story problem, see the 'New Card' item from the 'Edit Menu'). If a story problem is associated with a question then a check mark appears on the button icon.

Image: clicking on this button brings up a list of the images currently available within the course. To tie a question to an image select one from the list that appears (note you have to have already uploaded the image to the appropriate directory). If an image is associated with a question then a check mark appears on the button icon.

Number of Selections: on a multiple-choice or multiple-select question you need to enter in the text field the number of selections that will appear as possible answers, **you need to press enter after inputting the number**.

Randomize: on a multiple-choice or multiple-select question you need to indicate whether or not you want the options to be shown in random order each time the question is viewed. Clicking this button sets or unsets the randomize feature.